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AUTHOR Ewell, Peter T.
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ABSTRACT

The importance of a state role in assessing and improving undergraduate education and possible initiatives that states can pursue are discussed. Two roles for states are identified: (1) state regulatory and funding mechanisms should create an appropriate climate and concrete incentives for inducing institutional self-improvement; and (2) state governments should monitor the performance of the state's higher education system as a whole by periodically collecting appropriate measures of effectiveness. Because of diversity among colleges and students, multiple means for assessing the effectiveness of both the whole system and individual colleges are needed. Important issues in determining the effectiveness of a state's college instructional system are: changes in student learning and development resulting from instruction; monitoring access to higher education; how student learning and development contribute to behavior at work, the marketplace, and the community; and costs of programs and improvements. Examples of instructional improvement programs at six colleges are described. Broad directions for state policy are addressed that concern issues such as incentives for institutional improvement and the use of quantitative information. (SW)

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The Role of State Government in Improving the Quality of Postsecondary Education

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Peter T. Ewell

Senior Associate

National Center for Higher Education Management Systems (NCHEMS)

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Levers for Change:

The Role of State Government in Improving the Quality

of Postsecondary Education

In recent months, discussions about the quality of America's colleges and universities have become increasingly salient, both on and off college campuses. Many of these discussions have been stimulated by parallel and far deeper public concerns with effectiveness in elementary and secondary education. Many have also been stimulated by the fact that postsecondary education has become bewilderingly complex. The result of both these trends has been a growing number of critical public assessments of higher education--for example, Involvement in Learning, the report of the National Institute for Education's Study Group on the Conditions of Excellence in American Higher Education, Integrity in the College Curriculum, a report of the American Association of Colleges, and To Reclaim a Legacy, a report of the National Endowment for the Humanities.

Any historical review will reveal American higher education to be strongly characterized by such periods of self-examination. Why should state governments get involved? In answer to this question, the purposes of this paper are two: (1) to argue for a growing need for a state role in assessing and improving undergraduate education, and (2) to discuss a number of possible initiatives which state governments can undertake to induce positive change. The case for need rests on the considerable investment most states have made in their systems of higher education, and upon demonstrable connections between the effectiveness of such systems and the fulfillment of other state objectives. The approaches discussed are based on a growing body of experience with actual quality improvement programs in colleges and universities, and on

the experience of several states which have been experimenting with ways to induce and reward such programs.

Two important points undergird both these discussions. The first is that higher education is a distinctive undertaking, distinguishable both in terms of its governance structure and in terms of the problems it faces. Despite some common roots, the problems of higher education and elementary/secondary education are quite different. Unlike the elementary/secondary world, there is no lack of basic talent in college classrooms. Nor are colleges and universities for the most part dealing with student populations so deficient in basic skills as to render them essentially ungovernable or unteachable. Instead, the problems of higher education have largely been those of establishing instructional improvement as a real priority, of changing organizational structures to facilitate improvement, and of providing clear incentives for needed change.

State government has a role to play in addressing these problems, but the nature of higher education makes this role a special one. Historically, colleges and universities have been decentralized and largely self-governing enterprises. Their major organizational strength has been their ability to provide a stable environment for individual experiment and innovation--in both research and teaching. The principles of individual faculty authority and of academic freedom provide a foundation for effectiveness in these primary missions by ensuring that contemplated changes are reviewed and approved from a perspective removed from both the marketplace and from the shifting demands of public opinion.

As organizations, this means that colleges and universities have considerable capacity for self-improvement. But it also means that the changes which ultimately stick must come from within. The result can be a paradox for external authority. On the one hand, if higher education is left entirely to itself, the probable result will be a neglect of socially important tasks. On the other hand, if state regulatory authority is applied directly, the very mechanism for effectively achieving these tasks may be threatened. As a result, unlike reform in elementary and secondary education, the state role in improving the quality of higher education will be more indirect and circumscribed. The key is to develop policy mechanisms which trigger institution-level efforts toward self-improvement. Examples and discussions of such mechanisms will form a considerable part of later sections of this paper.

The independent nature of college and university governance also leads to a second important point: a state's objectives for its system of higher education should be broader than the sum of the objectives of the particular institutions which comprise it. When states and institutions seek "quality", they are often speaking of different things. For many institutions, to attain quality may mean to attain the research productivity, student selectivity, and national peer status of a "flagship" research university. But a collection of "flagships" may ill-serve state needs for access, for broad-gauged talent development, and for practical, applicable regional research and service.

This means that any attempt to attain quality must carefully define and monitor systemic as well as institutional effectiveness. Indeed, attaining system objectives may imply substantial differentiation among institutions. And it may mean establishing quite different templates against which to evaluate institutional effectiveness. Some possible dimensions of systemic

effectiveness will be the topic of a later section of this paper. For the moment, however, it is important to stress that a systemic perspective argues against change policies which will induce institutions to automatically become more like one another. Such policies as uniform minimum admissions standards and common capstone examinations may well increase "quality" levels at individual institutions. The question for state decisionmakers is what consequences such policies have for the attainment of a highly differentiated set of objectives.

Taken together, these two points set an important context for defining state policy. From within this context, two distinct roles for state government emerge:

- State regulatory and funding mechanisms should create an appropriate climate and a set of concrete incentives for inducing institutional self-improvement. This implies that the role of state government is important, but as a stimulant toward, rather than as a direct participant in, institutional change. It also implies that states should use all appropriate levers in concert to induce change. Funding mechanisms, regulations and reporting requirements, financial aid and other access mechanisms, and mission or program review policies all should be consistent in supporting such efforts.

- State governments should monitor the performance of the state's higher education system as a whole by collecting appropriate measures of effectiveness at periodic intervals. This implies that states must clearly define the systemic objectives which they are trying to achieve, and should clearly articulate these objectives through the types of data which they periodically collect. It also implies that

accountability for effectiveness rests with the system as a whole as much as with the individual institutions which comprise it.

These two roles are distinct, but are mutually supporting. Concrete, reliable, regularly collected information on system effectiveness is needed to guide overall policy development aimed at institutional self-improvement. The actual information collected, and the form in which it is required, will also signal to institutions the priorities the state considers important and intends to pursue. At the same time, state incentives for institutional improvement, based upon such information, should be consistent with and preserve existing institutional governance arrangements, but should hold institutions accountable for ensuring that efforts for self-improvement consistent with state priorities are indeed taking place.

1. Why Is Higher Education's Effectiveness an Issue and Why Should State Governments Have a Role in Addressing It?

The case for state involvement in improving the effectiveness of colleges and universities rests on several foundations. One is the growing evidence of important connections between higher education and regional economic development. In the development of high technology industries, for example, states are increasingly recognizing that the presence of a strong university research and teaching base is a significant asset (Matthews and Norgaard, 1984). At the same time, industries and employers of all kinds have increasingly made known their needs for new employees with appropriate general skill levels, and for access to professional development opportunities for those already employed. A second historic foundation of state involvement is access. Participation in higher education brings with it economic and social benefits, and an important public responsibility is

to ensure that access to these benefits is equitable and provides maximum opportunities to develop individual talents.

These twin foundations have provided a rationale for state support of higher education since the creation of the land grant institutions in the mid-ninteenth century. Today, however, state support underlies a vast and complex array of institutions. Since 1950, the total number of higher education institutions has increased by over 60%, and the vast majority of this expansion is accounted for by public institutions (NIE, 1984). Particularly impressive has been the growth of publicly supported two-year colleges, which now number over 900 and which enroll about a third of those attending. State-supported institutions currently enroll over six and one-half million full-time-equivalent students--more than three-quarters of those attending colleges and universities (McCoy and Halstead, 1984). Types of institutions range from complex "multi-versities" with national research standing and high selectivity to small, rural public two-year colleges with enrollments of less than 500. Between these extremes are institutions as diverse as former teachers colleges aspiring to be comprehensive regional institutions, specialized professional and technical training institutes, and diverse, multi-campus urban community colleges.

As the number and complexion of institutions have changed, so have the characteristics of students. Enrollment in all postsecondary institutions has quadrupled in the last 35 years, and with expansion has come a corresponding diversity. Over half of currently enrolled students are women, more than 15% are minorities, and more than 40% are over 25 years old (NIE, 1984). Demographic diversity has meant divergence from typical patterns of attendance: over 40% of current students attend part-time,

almost half commute to college, over 30% of new freshmen have delayed their entry into college at least a year since graduating from high school, and more than half those seeking a baccalaureate degree take more than the traditional four years to complete it (NIE, 1984). These tendencies are national averages; they are correspondingly greater for state-supported institutions.

Part of this shift has also been due to parallel changes in higher education's secondary clientele--industries, employers, and professions. Advances in technology (in traditional industries as well as in new technology-based industries) have meant considerable expansion in the array of specialized occupations. In the current high-technology sector, for example, it is estimated that over two-thirds of the work force requires college training, and that over half of the degrees required are in a range of newly created specialized fields of study (Botkin, Dimanescu and Stata, 1982). Colleges and universities have responded to these needs by creating a widening array of new disciplines. The Council on Postsecondary Accreditation, for example, currently recognizes and certifies programs in 37 areas of professional training ranging from Medical Technology to Social Work. At present, American colleges and universities offer programs in more than 1100 distinct fields, more than half of them occupational. And students are taking such programs in growing numbers. The traditional arts and sciences baccalaureate program, which enrolled over half the nation's undergraduate students 20 years ago, now accounts for only a third (NIE, 1984).

Diversity in itself, of course, is not a major cause for concern. Concern arises only if public objectives for higher education are not being met.

But diversity does call attention to the need for clarity in these objectives. One reason for recent attention toward higher education at the state level, indeed, is prompted by a straightforward desire on the part of those who support the enterprise to understand exactly what it is supposed to do.

Even in the absence of such understanding, there is growing evidence that higher education may not effectively be doing some of the things that it should be doing. In parallel with declines in test scores among high school graduates, for example, have been declines in 11 of 15 major subject areas on the Graduate Record Examination administered to many students at the end of a four-year college program (NIE, 1984). National figures on program completion indicate that only about 60% of those who begin college expecting to attain a baccalaureate degree eventually complete this goal (Beal and Noel,d 1980). Clearly much of this performance can be attributed to changes in the college-going clientele, and to the poor preparation many students receive in high school. But some of the responsibility surely rests with colleges and universities themselves.

In some ways more revealing than declines in student performance have been the responses of employers and professional groups to perceived deficiencies in the training provided by colleges and universities. More and more are investing in their own training programs rather than turning to their preferred alternative--area colleges and universities--to provide basic training (Matthews and Norgaard, 1984).

The case for public involvement in higher education continues to rest, as it always has, on the attainment of objectives for manpower development and individual mobility through the development of talent. But the

organization of public higher education places most responsibility and influence in the hands of the state rather than in the hands of federal or local authorities. This is a situation quite unlike that of elementary and secondary education. Not only do states have much to lose if undergraduate basic skills are not being acquired by their citizens, but they also have the most leverage available for inducing concrete improvement through funding mechanisms, through reporting and accountability procedures, and through direct regulation. But in order for any of these mechanisms to be applied effectively, more basic understanding is required of exactly what is to be accomplished.

2. What Does College and University Effectiveness Actually Mean and How Can it Be Assessed?

Higher education has many purposes, and these different purposes are often embodied in different types of institutions. Indeed, as emphasized previously, state policy should recognize institutional diversity as healthy so long as the total pattern of outcomes produced is consistent with statewide educational needs. Diversity also implies that multiple means for assessing the effectiveness of both the system as a whole and of individual institutions need to be employed. But along what dimensions should such an assessment be structured? The state perspective demands that patterns of outcomes across institutions be monitored and addressed through policies which assign distinct missions to different institutions. At the same time, accountability mechanisms for individual institutions demand that some attempt be made to sort out many possible outcomes, to establish priority among them, and if feasible to directly measure them.

In brief, determining the effectiveness of a state's higher education instructional system ought to involve getting answers to four distinct kinds of questions:

a. What broad changes in student learning and development have actually occurred in particular institutions as a result of instruction? At bottom, education is a change concept and ought to be recognized as such. Students enter colleges and universities with certain basic abilities and have developed these abilities to varying degrees based upon their past training and experience. Assessing the effectiveness of college thus means more than simply looking at what students know and can do at the end of the experience. It means first taking into account prior knowledge and characteristics (Astin, 1977). Very few institutional assessment programs currently meet this standard, but their number is growing. State policy should encourage development of such programs by any means appropriate.

Most scholars currently recognize a number of distinct outcomes dimensions for higher education (Ewell, 1984). Individual institutions may legitimately vary in the priority which they accord each of these dimensions, but all represent important developmental outcomes of the college or university experience:

Cognitive Development. Changes in actual knowledge are among the most easily identified college and university outcomes, but are among the most difficult to consistently measure. Most observers make a distinction between general knowledge (the presumed common cognitive content of the baccalaureate degree, for example) and the more specialized knowledge associated with particular academic

disciplines. Both are being increasingly assessed through concrete measurement procedures. Common mechanisms for examining gains in general knowledge include the frequently administered SAT and ACT entrance examinations, and the verbal and quantitative portions of the Graduate Record Examination (GRE). Recently, specialized general education assessment instruments such as the ACT College Outcomes Measures Project (COMP) have been administered at a significant number of institutions. In some cases, these examinations have been administered in a test-retest format in order to assess growth. Assessment of knowledge in a specific field often rests upon such standardized tests as the GRE Field Examinations currently offered in seventeen distinct fields. Other institutions have used such examinations as the CLEP (available for over 30 fields) to assess specialized course-level knowledge. Still others have successfully developed their own examinations.

Skills Development. Most of the recent concern with educational effectiveness has not been about what students know but about what they can or cannot do. Changes in levels of performable skills also represent an important category of outcomes. Like cognitive development, however, skills development may be pursued along two important sub-dimensions. General functioning skills include such broad abilities as writing, speaking, and mathematical ability. They also include such higher-order skills as the ability to think critically, to organize inquiry, and to assess information. Instruments such as the ACT-COMP, which require actual student performance in response to diverse stimuli, represent good assessments of these abilities, and several institutions have

successfully employed specialized tests of general skills both diagnostically and to evaluate the curriculum. For the assessment of specialized, often job-related, skills, established standards of performance are generally available through the certification process. Many such programs require demonstrations of actual performance in real or simulated job situations.

Attitudinal Development. A final dimension of change as a result of the college experience involves the development of student attitudes and values. A primary traditional argument for higher education is its potential to civilize--to inculcate basic values of knowledge-seeking, tolerance for different perspectives, or development of self-worth. For many institutions, particularly private colleges, development of such attributes is seen as a primary goal. Academic researchers have long concentrated their efforts on investigating such changes (for example, Chickering, 1969; Astin, 1977). Currently many instruments for assessing attitudinal development are available for and in use by colleges and universities. Among them are the ACE/CIRP, ACT-Evaluation Survey Service, and the College Board/NCHEMS Student Outcomes Information Service (SOIS). Many other institutions have constructed their own such instruments and administer them regularly.

From the state perspective, changes in student learning and development represent means to an end. Knowledge for its own sake is a noble goal, but one not immediately arguable as a public priority unless tied directly to the development of identifiable skills or changes in actual

behavior as manifested in the workplace and the community. For this reason, the state role in directly monitoring cognitive or developmental outcomes should probably be limited. A significant potential exception is in the attainment of basic skills. Here, it may be important for states to monitor a minimum level of acceptable performance as an indicator of systemic effectiveness. The same argument can be made for rates of passage on established specialized certification examinations.

At the institutional level, on the other hand, regular assessment of cognitive growth and attitudinal development is critical. Only through such a process can curricular effectiveness be judged or individual student progress properly monitored and directed. Despite its importance at the institutional level, however, most colleges and universities remain unsystematic in the ways they address cognitive assessment. As noted later, in cases where this has been given considerable attention, the payoffs in instructional effectiveness have been considerable.

b. For Whom? Colleges and universities may be demonstrably effective in producing changes on all of the above dimensions and still fall short of state objectives. This will be the case if it is clear that access to these benefits is limited, or sufficiently skewed so that significant opportunities to develop potential talent are denied to certain individuals. As a result, access remains an important dimension of performance for state systems of higher education. What is the structure of attendance at institutions by demographic group or by region? What institutions are serving what kinds of students and do

these patterns imply differences in the types of educational outcomes potentially attainable by such groups? What programs do students of different type choose to enroll in, and what does this imply about the structure of educational access? Such questions have little to do with what actually occurs in college classrooms, but may have a great deal to do with the ability of a state's higher education system to meet established objectives.

Compared to an assessment of student growth and development, monitoring access is a straightforward exercise, and one, indeed, that all states already accomplish to a greater or lesser degree. Most such data collection, however, currently uses the institution as the level of analysis. But access comparisons among institutions tell only part of the story. In many cases, the most important patterns are contained in statistics on access to programs throughout the system. Examining such issues is an important part of monitoring system effectiveness.

c. With What Result? Given that educational gains are achieved in college classrooms, and that access to these gains is equitably assured, how do these gains translate into actual behavior in the workplace, in the economy at large, and in the marketplace and the community? This is arguably the most important question of effectiveness from the point of view of state policy.

An initial behavioral question, however, is simply the ability of students to successfully complete their programs. Current institutional funding mechanisms reward institutions for the volume of their instruction, but provide little recognition of its continuity. While it is important to recognize that different types of students and

different types of programs will have legitimately different rates of program completion, knowing approximately what these rates are is an important system-level responsibility. Many practical problems remain in this arena due to the difficulties of accurately assessing program completion given initial differences in student intent and program structure. But such difficulties can be substantially overcome through establishment of common definitions and measurement procedures.

Assessment of student performance after college is a difficult undertaking, but a number of straightforward procedures allow initial measurement of these outcomes (Pace, 1979). One important dimension here is access to and performance in additional higher educational experiences. States which possess a common unit-record data structure for their public community colleges and universities have a significant advantage in their ability to track individual students through several institutions and to assess their performance at different levels. Development of such a structure and its associated reporting is an important first step in monitoring system effectiveness. Assessing job status and performance is more difficult. Federal experience with the VEDS program, for example, testifies to problems which may be encountered in large-scale student follow-up. Many individual institutions, however, successfully track a large proportion of their graduates into at least their first job. Their key to success is providing sufficient resources to fund a technically sound follow-up process (Stevenson, Walleri, and Japely, 1985). A second approach, used by at least one state, is to link educational records with employment records collected for other purposes. If a mandate for the legality of such a procedure can be procured through legislative

action, this approach is most promising as a means of assessing program effectiveness.

d. At What Cost? Cost is as much a dimension of systemic effectiveness as the actual levels of performance achieved. From the state's perspective, improving the effectiveness of higher education is a policy question involving trade-offs among many potential claims on resources. Estimates of the costs of both base programs and of contemplated improvements are critical in order to assess the marginal value of such improvements in the light of other investment opportunities.

Assessments of instructional cost in higher education have a long history, and remain a difficult undertaking. At the same time, most states currently undertake institutional cost comparisons, and many examine the costs of individual instructional programs both within and across institutions. When coupled with information on student growth and development and actual performance in the marketplace, cost data take on an additional dimension. In the absence of performance information, the tendency is to use cost data alone as a basis for program performance. The message for state policy is to temper cost information with its effectiveness counterpart. Both measurements are difficult, and both are consequently error-laden. But to use only one because the other is assumed to be flawed represents a considerable abdication.

Mapping out the basic dimensions of effectiveness for higher education from the state's perspective is a first step in achieving positive change. Only a few such dimensions are actually appropriately monitored at the state

level--primarily those having to do with access, cost, and selected areas of post-college performance. Most assessment is appropriately handled at the institutional level, and it is the role of state policy to encourage and reward such effort. The next section examines some of the characteristics of successful institution-level assessment and improvement programs.

3. What Kinds of Improvements Can In Fact Be Made?

To be effective, institutional assessment and improvement programs, particularly in the area of undergraduate instruction, must overcome a number of structural obstacles. To encourage the development of such programs, it is important for state authorities to understand these obstacles more fully. A first obstacle is lack of top administrative commitment. Colleges and universities are bewilderingly multi-functional, and while undergraduate instruction is clearly a goal of most institutions it is rarely accorded visible priority. A second obstacle is fragmentation of responsibility. The strong departmental structures of most colleges and universities, and a division of labor between "academic" and "student service" functions, generally means that responsibility and accountability for student success and failure is badly divided. A third obstacle is lack of incentive for improvement. Most budgetary allocation within institutions proceeds on the basis of teaching volume rather than quality; furthermore, in most institutions few mechanisms exist for rewarding institutional innovation. A final obstacle is lack of concrete information about student learning and development. Assessment of student outcomes, while a growing activity on many campuses, is still seen as illegitimate by many faculty and as insufficiently precise by many others. More

importantly, few mechanisms exist for introducing such information into the institutional program planning and decisionmaking process.

That these obstacles can be overcome is evidenced by the experience of several dozen institutions which have experimented with comprehensive programs of instructional improvement. Illustrative of the range of such campus-level instructional improvement programs are the following:

- The University of Tennessee, Knoxville. For the past five years, the state of Tennessee has maintained a Performance Funding Program which rewards institutions for demonstrated performance on five established criteria. Three of these criteria are defined in terms of student outcomes: student learning in general education, student learning in the major field, and student satisfaction with the educational experience. In response to the Performance Funding Program, the University of Tennessee, Knoxville has developed an award-winning comprehensive instructional evaluation program. Key elements of the program include administration of the ACT-COMP instrument to freshmen and seniors to assess learning gain, senior testing of all graduates in their majors, and a regularly administered student opinion survey. In many cases, individual departments have constructed their own senior tests. Results of assessment are broken down to the department level, and are used to address needed changes in curriculum. These results also enter the university's planning/budgeting system through an established program review process. The program's impact has been considerable as measured by both actual curriculum change and increased faculty involvement with students.

- Northeast Missouri State University. For the past fourteen years Northeast Missouri State University has conducted a "value-added" assessment program to ascertain the degree of learning achieved by its students. The initial intent of the program was to demonstrate curricular effectiveness by comparing the results obtained by NMSU students with national norms on standardized achievement tests. As a result, the University's assessment program is founded upon available national tests, including the ACT Assessment and ACT-COMP (administered to freshmen and readministered to sophomores) and a wide range of GRE field examinations and professional certification or professional school entrance tests. The University also conducts three major surveys of student opinion. The result of the testing program has been to focus considerable campus attention on improving the quality of instruction. Student gain as measured by standardized tests has improved markedly with changes in the curriculum, and as a result the university is now attracting better students. As a regional comprehensive university, Northeast Missouri is typical of many former public teachers colleges in size and program array. Unlike most, however, NMSU has chosen to emphasize quality undergraduate instruction as its primary mission. There is no question that the assessment program has played a key role in the University's success.

- The State University of New York at Albany is a high-quality research and graduate institution with a selective undergraduate student body. Like many such institutions, however, few mechanisms existed several years ago to effectively address issues of undergraduate teaching and learning. Through participation in a

national project to make better use of student information, SUNY-Albany has for the past two years made information on student outcomes a part of its annual departmental planning and budgeting process. Together with financial and enrollment data, each department is supplied with selected data on graduate and current student evaluations of instruction at the departmental level. For example, each department gets information on student graduate school and job placement, and summaries of student perceptions of the effectiveness of the instruction they received in light of what they are currently doing in graduate school or the workplace. Results have been of considerable value in revising curricula to meet unknown needs.

- Miami-Dade Community College. As a large, urban, multi-clientele community college, Miami-Dade is faced with a major problem in effectively advising students and monitoring their success. Approximately ten years ago, the college began a program of competency testing coupled with extensive use of computer support to automate the advising and placement process. Currently, students are tested on entry to determine their ability to enter particular programs, and their progress is automatically monitored to ensure proper progress and to detect early signs of difficulty. Computers are used to generate individual advising profiles that indicate which courses a given student is eligible for, and which courses would have to be taken to complete a particular program. As a result, limited faculty and counselor time can be devoted to real interaction with students instead of the usual "audit and sign-off" function of most such contacts. The testing and evaluation program

also allows early detection of student problems so that appropriate interventions can be initiated. Rather than focusing on departmental or curricular improvements, Miami-Dade has chosen to focus on individual student success. Results of the program, as measured both by program completion and learning gain, have been considerable.

- St. Petersburg Junior College. The assessment and improvement program at this multi-campus urban institution has focused first on program and curriculum review. As one of several pilot institutions for statewide community college program review, St. Petersburg Junior College developed a model process for gathering data on program effectiveness in meeting regional educational needs. For each program under review, the college undertakes a comprehensive survey of regional employers and other "consumers" of the college's educational product. This survey is based on interviews with actual employers, and reviews both their training needs and their assessment of the competence on the job of the College's graduates in the field. These data are supplemented with statewide data on job placement for graduates of occupational programs and data on performance at senior institutions for transfer students. Results of this process have led to often substantial changes in program structure.

- Alverno College. As a small private women's college, Alverno College has been particularly interested in individual student development. The assessment program at Alverno is both comprehensive and individualized, and has as its objectives

providing feedback to individual students on their own progress and ensuring that the curriculum is effectively meeting established educational goals. As part of the assessment process, Alverno administers many standardized tests and established tests of psychological and personal development (for example, Kolberg's scales for moral development and Perry's approach to assessing ethical development). These formal measures are supplemented by an extensive interview process which assesses development more qualitatively and which provides individual students with feedback on their progress. The program is supported by a professional assessment center, the activities of which have, in effect, become part of the curriculum. The Alverno program is a demonstrated success, and because of its focus on individual student learning and development, has been seen as a model to emulate by many small liberal arts institutions.

These successful programs, and others like them, share a number of common characteristics (Ewell, 1984). First, the most successful programs contain an explicit focus on the assessment and improvement of individual curricula. The curriculum is the heart of the instructional enterprise, and it is important to ensure that impacts on the curriculum are clearly identifiable. Many programs fail because assessment and improvement is only undertaken for the institution as a whole. It is easy for individual faculties and departments to avoid responsibility for student success if the entire institution becomes the level of analysis. Addressing this issue requires that department-level results are publicly available and are visibly used in the decisionmaking process.

A second element of successful programs is a proactive commitment to change on the part of top administration. In each of the cases cited, top administration not only supported the effort verbally, but devoted scarce resources to ensure that the job was done properly. In each case the visible commitment of resources and support to the assessment process served as a signal for mid-level administrators to push the effort, and to consistently stimulate faculty to re-evaluate their activities. In many cases, commitment is demonstrated by a change in the institutional reward structure. Several institutions, for example, have experimented with special purpose quality-improvement funds allocated to departments and units on a competitive basis. Others have introduced data on performance into the established budgetmaking process.

A final element of successful programs is the use of explicit, quantitative, institution-specific data on student performance. Despite the many drawbacks of the instruments and data-gathering techniques used, these institutions have found explicit data on educational outcomes of immense value in addressing needed changes. Prior to the existence of such data, needed reforms could be blocked by seemingly legitimate claims of the need to study the problem further, or by endless discussions about where a particular problem was located or its actual magnitude. Even an approximate answer, if arrived at through a concrete measurement procedure, often proved enough to get needed reforms under way.

These characteristics are the hallmarks of an institution successfully oriented toward self-assessment and self-improvement. Successful state policy, in turn, will consist of practices and incentives designed to encourage such behavior.

4. Given Examples Such as These, What Can States Actually Do?

In attempting to effect qualitative improvement in higher education at the institutional level, state governments basically have two tools with which to work (Jones, 1985). First, they can change the budgetary allocation process to provide special funds for needed improvements, or to reward and encourage successful performance. In many states, this will mean changes in established funding formulas which govern the allocation of dollars to individual institutions. In others, it may involve setting aside resources to be allocated by means of a separate process. Secondly, states can exert control over institutional behavior directly through regulation or statute. In some cases this will mean initiating requirements for specific performance on the part of currently enrolled students or graduates. In others it may mean establishing requirements that existing resources be expended in designated ways, or that institutions adopt certain explicit evaluation activities.

a. Approaches Based on Funding Allocation. Probably the most powerful single lever with which state governments can seek to influence institutional behavior is their method for allocating resources. But by its very nature, use of the allocational lever tends to be limited: given substantial existing investments and the need to maintain the asset, shifts in actual dollar allocations among institutions tend to be long-term and marginal.

Recent reviews of state-level allocation mechanisms indicate that approximately half of the states currently allocate funds to institutions on the basis of enrollment-driven funding formulas. Such formulas tend to have a "levelling" effect on institutions, as the

incentives which they provide for are for the same kinds of behavior regardless of institution (Brinkman, 1984). Formulas also concentrate on input and activity measures--items such as enrollments, faculty, and gross square footage--which are readily quantified. Acting in concert, these two drawbacks tend to reward quantitative growth over qualitative improvement.

As a result of these drawbacks, many states have been experimenting with ways to mitigate the negative effects of formula budgets while preserving at least some of the simplicity, clarity and impartiality of the formula approach. At the same time, concern for qualitative improvement has induced some states to modify the allocation process in additional ways. In most cases, this involves setting aside funds for particular identified purposes. The most direct use of such funds is the one embodied in the Tennessee Peformance Funding program: using incentive funds to actually "buy" results at the institutional level. The Tennessee Higher Education Commission (THEC) program is almost unique in this respect, but some parallels exist in Florida's challenge grant program for funding new endowed chairs, and with New York's established degree capitation grant program (Bundy Funds) for private institutions.

Most extant state-level improvement programs, in contrast, are identifiably special purpose. Tennessee's "Centers of Excellence" program provides an example of such an approach. States such as Virginia have used set-aside funds to establish grant-like programs that foster innovations in curriculum or administration at the institutional level. Finally, states like Missouri have experimented

with allocating program improvement dollars on the basis of projected "returns on investment" in actual learner outcomes, in response to individual institutional request.

As several recent observers have noted (Brinkman, 1984; Spence and Weathersby, 1981), such "set-aside" and categorical grant programs have the major virtue of allowing enrollment-driven allocation formulas to do what they do best--to provide base funding in appropriate amounts to maintain fundamental operations and assets--while providing additional, targeted incentives for carefully selected qualitative improvement areas. Because the focus of such programs is indirect, powerful forces are exerted for institutional flexibilty in responding to the incentives provided. One of the best examples of how such a program can work is provided by the case of the University of Tennessee, Knoxville described above.

But problems with this approach are also apparent. A major difficulty lies in negotiating appropriate criteria for distributing special purpose funds. The Tennessee solution is so far unique, and arrived at its current form only after many iterations between state authorities and institutions about what might be feasible. Such discussions will take different turns in each state that attempts to set explicit criteria of this kind. The grant-like process used by states such as Virginia represents an alternative approach, but one which provides no hard link between allocation and performance.

A second difficulty with this approach is that of maintaining an appropriate balance between special purpose funds and the base funds needed to maintain the institutional asset. Qualitative improvements

are by nature marginal--they are added on to existing activities. But once qualitative improvement is recognized as a priority, the temptation surely exists of treating the entire funding process as performance funding. Doing so amounts to reopening the case for effectiveness on each aspect of an institution's program each year or biennium. As states that experimented with zero-based budgeting a decade ago can testify, this is likely to be a frustrating and fruitless exercise.

b. Regulatory Approaches to Quality Improvement. Rather than changing the allocation process, a number of states have opted to directly require certain kinds of activities as part of their exercise of regulatory authority. A few states have responded to public concern about academic quality, for example, by mandating that students demonstrate specific levels of performance. In Florida, students in public institutions completing their sophomore year must successfully pass a statewide College Level Academic Skills Test (CLAST) as a condition for enrollment with junior standing. New Jersey is embarking upon a similar program for implementation next fall. In Mississippi and Missouri, moreover, graduates of teacher education programs must score above designated levels on a standarized achievement test as a condition of graduation. Finally, in South Dakota, the public higher education system is currently implementing a requirement that all students be tested in both "value-added" terms and in comparison with national norms for performance in their major fields.

Even where explicit performance requirements have not been put in place, states have used their regulatory authority to induce

qualitative improvement. For example, there is a recent and rising trend toward legislative and executive audits of public colleges and universities to be conducted as performance audits. Traditionally, such audits have been almost exclusively confined to financial regulation--ensuring that institutions spent monies the way they said they would. A second example is provided by institutional and statewide program review processes. As indicated by a recent survey of state higher education agencies, more than two-thirds of the states now have explicit academic program review processes in place, and most of these are of recent origin (Barak, 1982). Such reviews are now increasingly performance-oriented, and require that the program provide data about student performance and subsequent educational and job success. For example, in Hawaii a new statewide program review process for community colleges is currently being pilot tested that includes substantial data on student placement and performance.

A third mechanism, more indirect, is to require institutions to produce data on outcomes as part of their statistical reporting obligations. State boards already require that public institutions report consistent data on enrollment and finance each year. Even if funding levels or programs remain unaffected, the act of requiring such data can signal concern about the issue to campuses, and can begin the process of change. In North Carolina, for example, university system authorities have for a number of years required that campuses submit data on student progress through the curriculum, and as a result, all public North Carolina institutions now possess longitudinal student tracking systems. The simple presence of such data on actual student progress,

unavailable at most institutions in other states, has stimulated changes in curriculum, and in placement and advisement.

These approaches share a number of common benefits. First, use of the state's regulatory authority allows direct communication of what is wanted and intended. Because finance mechanisms tend to be indirect, institutitions can sometimes find ways to meet the requirements for incentive funding without making substantial changes. Regulatory mechanisms, in contrast, particularly those based on actual student testing, are directly focused on the outcome to be produced. For example, Florida's "Gordon Rule" that requires freshmen to write a total of 50,000 words in the course of their initial year has indeed induced Florida campuses to address the issue of writing. Such mechanisms are at their best when they can be directly focused on a particular issue of this kind.

This strength, however, becomes a potential weakness when more general improvements are sought. Statewide testing programs (particularly such initiatives as the "rising junior" test programs in Florida and New Jersey) can involve considerable potential danger of overstandardization, and may induce all institutions to produce similar products. For example, in the "value-added" portion of Tennessee's Performance Funding program, questions have arisen about the appropriateness of comparing gain scores from the University of Tennessee, Knoxville--a selective campus whose students start relatively high on normed tests such as the ACT-COMP--with other less selective campuses. Indeed, the impact on the institutional admissions process of all testing programs should always be carefully considered

by state authorities. Performance testing will induce institutions to limit access based on initial ability; "value-added" testing will have the opposite effect.

In addition, there is a substantial danger involved in using single indicators of institutional performance. Testing programs, by their very nature, tend to direct attention to the test itself rather than toward what is being measured. So long as the tests chosen actually match state concern, this is not a problem; "teaching to the test," despite its odious sound, may be exactly what is wanted. But care should be taken to ensure that institutions are assessed on other performance criteria as well.

Because of these difficulties, indirect regulatory mechanisms such as program review have considerable appeal. First, they are already familiar to institutions, as more than two-thirds of the states already have such processes in place. Moreover, most such processes resemble specialized accreditation with which many programs are already familiar. Secondly, program review processes are already focused where they should be in order to achieve meaningful change--on the curriculum. Thirdly, their structure demands considerable participation from those who really need to be involved in the change process--faculty and mid-level administrators. Finally, program review processes are multi-dimensional and thus avoid the dangers of single-indicator systems. They allow for the fact that differences will exist among institutions and programs with regard to both intent and clientele.

5. Some Directions for State Policy

All of the above mechanisms are available to state governments to begin the process of inducing change at the campus level. Experience with them so far has been limited, but suggests a number of broad directions for state policy. Among them are the following:

- Monitor the "big picture." The appropriate focus for state-level assessment and data collection is the effectiveness of the system, not the details of institutional functioning. As a result, state data collection should concentrate on systemic questions such as access, cost, and student placement/performance in productive roles. At the same time, institutions themselves should be induced to undertake local assessment of their own effectiveness in teaching and learning.

- Recognize that institutional diversity is healthy, and should be preserved, so long as statewide educational goals are being attained. Considerable research has shown that the most effective colleges and universities are those with explicitly focused, distinct, institutional missions. State policy should be carefully fashioned to avoid assessment or regulatory policies which might homogenize important institutional differences, and thus dilute overall effectiveness.

- Create positive incentives for institutional improvement. A key point of successful programs for change at the institutional level is that they are based on the notion of reward for appropriate initiative rather than on the basis of punishment through regulation

or statute. Certainly a balance between the two needs to be maintained, and the best programs will contain elements of both. But experience suggests that the overall tone of an improvement program be one based on reward.

- Visibly distinguish incentive structures for qualitative improvement from regular institutional funding mechanisms. Maintaining a distinction between "base" and "improvement" funding provides a way of avoiding considerable institutional resistance to change. So long as qualitative reallocation remains marginal, institutions will feel less threatened about the ultimate impact and direction of such programs. Experience suggests that such incentive funds probably be limited to less than ten percent of total allocation.

- Leave institutions with considerable discretionary authority on how to accomplish quality improvement goals. The focus of state programs should be placed upon setting appropriate goals and on monitoring systemic performance. Individual institutions should be held accountable for (1) demonstrating through whatever data are institutionally appropriate that they are in fact producing a viable educational product consistent with their assigned mission, and (2) demonstrating that they have in place self-assessment and self-corrective mechanisms for dealing with detected problems locally.

- Stress the use of concrete, quantitative information on institutional and system performance. The key to successful systems at the institutional level is that they are based on the collection and public display of concrete data. Using explicit assessment

measures has many dangers, but has the substantial advantage of providing clear signals on what is considered important. Concrete data also allows problem areas to be immediately identified and addressed. With regard to data collection, Tennessee's motto is appropriate, "act on the possible while awaiting perfection."

- Use multiple indicators of institutional and system performance. While concrete assessment information is important, single indicators of performance should be avoided at both the state and institutional levels. Concentrating on only one or two indicators of performance creates powerful incentives for institutions to manipulate the indicators rather than to actually improve performance.

- Wherever possible, use existing information. Institutions and states already collect considerable information about student outcomes and performance. A key aspect of successful institutional assessment programs has been to encourage aggregation and use of such data for planning and review purposes. State policies should provide mechanisms for aggregation of this kind, for example, through program review processes. Such mechanisms should seek a wide (but not necessarily standard) array of data from institutions, and should emphasize the use of such information at the local level.

These general directions are intended only as a starting point for state policy development. Individual states will vary considerably in their intended outcomes, in the policy tools which they have available to achieve change, and in the array of institutions which comprise their higher education systems. In devising quality improvement programs, however, all states will do well to

remember that colleges and universities possess a considerable capacity to identify their own problems and to act in a creative manner to solve them. The best state programs will be the ones which effectively recognize and harness these forces.

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